

rapid efforts to compensate for this disadvantage. Hence it requires a much greater expenditure of strength to fly than to walk; and, therefore, we find the great mass of muscles in birds concentrated about the breast, (Fig. 30.) To facilitate its progress, the bird, after each flap of the wings, brings them against the body, so as to present as little surface as possible to the air; for a still further diminution of resistance, all birds have the anterior part of the body very slender. Their flight would be much more difficult if they had large heads and short necks.

193. Some quadrupeds, such as the flying-squirrel and Galeopithecus, have a fold of the skin at the sides, which may be extended by the legs, and which enables them to leap from branch to branch with more security. But this is not flight, properly speaking, since none of the peculiar operations of flight are performed. There are also some fishes, whose pectoral fins are so extended as to enable them to dart from the water, and sustain themselves for a considerable time in the air; and hence they are called flying-fish. But this is not truly flight.

194. SWIMMING is the mode of locomotion employed by the greater part of the aquatic animals. Most animals which live in the water swim with more or less facility. Swimming has this in common with flight, that the medium in which it is performed, the water, becomes also the support, and readily yields also to the impulse of the fins. Only, as water is much more dense than air, and as the body of most aquatic animals is of very nearly the same specific gravity as water, it follows that, in swimming, very little effort is requisite to keep the body from sinking. The whole power of the muscles is consequently employed in progression, and hence swimming requires vastly less muscular force than flying.

195. Swimming is accomplished by means of various organs designated under the general term, *fins*, although in an